

United Water



United Water Services
14634 River Road
Corona, Ca. 91720
telephone 909 739-6225
facsimile 909 371-2517

February 17, 2000

Lauren Fondahl
Biosolids Coordinator
US EPA (WTR-7)
75 Hawthorne St.
San Francisco, Ca. 94105-3901

Dear Lauren,

Enclosed please find the biosolids report for 1999 from the Western Riverside County Regional Wastewater Treatment Plant.

If you have any questions or comments concerning this submittal, please do not hesitate to contact me at the above telephone number.

Sincerely,

John Gallegos
Plant Manager
United Water Services Inc.

CC: Julio Lara, RWQCB
John Dahlke, WMWD
Steve Matthews, UWS

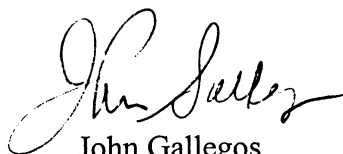
United Water Services Inc.
Western Riverside County Regional Wastewater Treatment Plant
BIOSOLIDS MONITORING REPORT
CALENDAR YEAR 1999

Order No. 97-2

NPDES No. CA8000316

February 17, 2000

I Certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A handwritten signature in black ink, appearing to read "John Gallegos", is positioned above the printed name and title.

John Gallegos
Plant Manager
United Water Services Inc.

WESTERN RIVERSIDE COUNTY REGIONAL WASTEWATER TREATMENT PLANT

BIOSOLIDS REPORT 1999

Process Description

The Western Riverside County Regional Wastewater Treatment Plant (WRCRWTP) utilizes a 4.41-MG oxidation ditch for initial secondary treatment. From the oxidation ditch, the sludge is allowed to settle in two secondary clarifiers. The continuously wasted sludge is then thickened to a concentration of 4% and fed to two aerobic digesters for further sludge stabilization. The digesters were primarily operated in series mode during 1999. The primary digester receives the 4% thickened sludge while the secondary digester receives transferred sludge from the primary digester daily to maintain an overall system mass balance.

The oxidation ditch was maintained at an SRT of between 12 to 20 days through out this reporting period and at a temperature of at least 20° C, while the digesters have been maintained at an SRT of between 30 to 55 days at temperatures between 30° to 48° C. A total of 1033 dry metric tons of biosolids on a dry weight basis were produced during the calendar year of 1999. A total of 115.2 dry metric tons of biosolids were produced during the calendar year of 1998. (The plant has only been on line discharging effluent since April 1 of 1998.) All biosolids were land applied by Synagro except during the period of non-Class B sludge production (biosolids did not meet vector attraction reductions) from 3/19/99 through 6/23/99. The non- Class B sludge was then sent to Synagro's composting facility.

Class B Biosolids Reduction Requirements

The biosolids from the WRCRWTP achieved pathogen reduction requirements for class B sludge by maintaining a combined SRT of at least 34 days during 1999. This was verified for a period of 3 months by maintaining a fecal coliform of less than 2,000,000 MPN (Supporting data can be found in the following tables of this report) from November of 1998 through January of 1999. This data established baseline SRT requirements for the operation of the solids handling processes.

Vector reduction requirements were met by either maintaining a volatile solids reduction of at least 38% in the digesters or by maintaining a SOUR of less than or equal to 1.5 mg/g/hour on a dry weight basis. Supporting data for all reductions can be found in the following tables with this report. Land application requirements can be found in the appendix of this report along with all supporting laboratory results.

WESTERN RIVERSIDE COUNTY REGIONAL WASTEWATER TREATMENT PLANT
CLASS B BIOSOLIDS REDUCTION

JANUARY 1999 AVERAGE			
Vector Attraction		Pathogen Reduction	
% Vol Reduction	SOUR's	Combined SRT Days	Fecal Coliform Geometric Mean
19	1.3	34	172,350

FEBRUARY 1999 AVERAGE			
Vector Attraction		Pathogen Reduction	
% Vol Reduction	SOUR's	Combined SRT Days	Fecal Coliform Geometric Mean
21	1.45	37	NA

MARCH 1999 AVERAGE			
Vector Attraction		Pathogen Reduction	
% Vol Reduction	SOUR's	Combined SRT Days	Fecal Coliform Geometric Mean
26	1.9	29	NA

APRIL 1999 AVERAGE			
Vector Attraction		Pathogen Reduction	
% Vol Reduction	SOUR's	Combined SRT Days	Fecal Coliform Geometric Mean
22	3	31	NA

MAY 1999 AVERAGE			
Vector Attraction		Pathogen Reduction	
% Vol Reduction	SOUR's	Combined SRT Days	Fecal Coliform Geometric Mean
20		30	NA

JUNE 1999 AVERAGE			
Vector Attraction		Pathogen Reduction	
% Vol Reduction	SOUR's	Combined SRT Days	Fecal Coliform Geometric Mean
2.5	40	43	NA

JULY 1999 AVERAGE			
Vector Attraction		Pathogen Reduction	
% Vol Reduction	SOUR's	Combined SRT Days	Fecal Coliform Geometric Mean
42	3.5	43	NA

AUGUST 1999 AVERAGE			
Vector Attraction		Pathogen Reduction	
% Vol Reduction	SOUR's	Combined SRT Days	Fecal Coliform Geometric Mean
40	2.2	63	NA

SEPTEMBER 1999 AVERAGE			
Vector Attraction		Pathogen Reduction	
% Vol Reduction	SOUR's	Combined SRT Days	Fecal Coliform Geometric Mean
38	0.9	63	NA

OCTOBER 1999 AVERAGE			
Vector Attraction		Pathogen Reduction	
% Vol Reduction	SOUR's	Combined SRT Days	Fecal Coliform Geometric Mean
37	0.9	57	NA

NOVEMBER 1999 AVERAGE			
Vector Attraction		Pathogen Reduction	
% Vol Reduction	SOUR's	Combined SRT Days	Fecal Coliform Geometric Mean
42	0.7	57	NA

DECEMBER 1999 AVERAGE			
Vector Attraction		Pathogen Reduction	
% Vol Reduction	SOUR's	Combined SRT Days	Fecal Coliform Geometric Mean
44	0.6	69	8,817

Note: Only one parameter needs to be met for vector attraction and pathogen reduction.
 Vector attraction limits: 38% volatile solids reduction or SOUR's equal to or less than 1.5
 Pathogen reduction limits: Previous data indicates that fecal coliform reductions can be met at a digester temperature of 30°C with a combined SRT of less than 34 days or a fecal coliform geometric mean of less than 2 million MPN.
 * Fecal coliforms started in house on December of 1999 for digester number 2.
 Biosolids being composted during period of mid March to late June 1999.

WESTERN RIVERSIDE COUNTY REGIONAL WASTEWATER TREATMENT PLANT
ANNUAL BIOSOLIDS REPORT 1999

QUARTERLY ANALYSIS RESULTS DIGESTER 1

1st Quarter Analysis March 1999			2nd Quarter Analysis July 1999			3rd Quarter Analysis September 1999			4th Quarter Analysis December 1999		
Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results	Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results	Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results	Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results
	mg/kg	mg/L		mg/kg	mg/kg		mg/kg	mg/kg		mg/kg	mg/kg
Arsenic	41	0.18	Arsenic	41	11	Arsenic	41	ND	Arsenic	41	ND
Cadmium	39	ND	Cadmium	39	ND	Cadmium	39	ND	Cadmium	39	ND
Chromium	1,200	ND	Chromium	1,200	25	Chromium	1,200	26	Chromium	1,200	26
Copper	1,500	0.3	Copper	1,500	510	Copper	1,500	560	Copper	1,500	550
Lead	300	ND	Lead	300	25	Lead	300	26	Lead	300	29
Mercury	17	ND	Mercury	17	ND	Mercury	17	ND	Mercury	17	ND
Molybdenum	75	ND	Molybdenum	75	15	Molybdenum	75	15	Molybdenum	75	15
Nickel	420	0.06	Nickel	420	22	Nickel	420	23	Nickel	420	22
Selenium	36	0.05	Selenium	36	11	Selenium	36	ND	Selenium	36	ND
Zinc	2,800	0.34	Zinc	2,800	650	Zinc	2,800	710	Zinc	2,800	700

QUARTERLY ANALYSIS RESULTS DIGESTER 2

1st Quarter Analysis March 1999			2nd Quarter Analysis July 1999			3rd Quarter Analysis September 1999			4th Quarter Analysis December 1999		
Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results	Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results	Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results	Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results
	mg/kg	mg/L		mg/kg	mg/kg		mg/kg	mg/kg		mg/kg	mg/kg
Arsenic	41	0.25	Arsenic	41	14	Arsenic	41	ND	Arsenic	41	ND
Cadmium	39	0.04	Cadmium	39	ND	Cadmium	39	ND	Cadmium	39	ND
Chromium	1,200	0.4	Chromium	1,200	29	Chromium	1,200	25	Chromium	1,200	25
Copper	1,500	8.7	Copper	1,500	570	Copper	1,500	640	Copper	1,500	540
Lead	300	0.52	Lead	300	38	Lead	300	ND	Lead	300	29
Mercury	17	0.038	Mercury	17	2	Mercury	17	ND	Mercury	17	ND
Molybdenum	75	0.28	Molybdenum	75	19	Molybdenum	75	20	Molybdenum	75	17
Nickel	420	0.4	Nickel	420	29	Nickel	420	25	Nickel	420	25
Selenium	36	0.24	Selenium	36	14	Selenium	36	ND	Selenium	36	ND
Zinc	2,800	12	Zinc	2,800	760	Zinc	2,800	840	Zinc	2,800	700

WESTERN RIVERSIDE COUNTY REGIONAL WASTEWATER TREATMENT PLANT
ANNUAL BIOSOLIDS REPORT 1999

ANALYSIS RESULTS BIOSOLIDS

<i>Feb-99</i>			<i>Mar-99</i>			<i>Apr-99</i>			<i>May-99</i>		
Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results	Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results	Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results	Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results
	mg/kg	mg/kg		mg/kg	mg/kg		mg/kg	mg/kg		mg/kg	mg/kg
Arsenic	41	5.9	Arsenic	41	5.86	Arsenic	41	*	Arsenic	41	*
Cadmium	39	2	Cadmium	39	1.5	Cadmium	39	*	Cadmium	39	*
Chromium	1,200	36	Chromium	1,200	35	Chromium	1,200	*	Chromium	1,200	*
Copper	1,500	533	Copper	1,500	491	Copper	1,500	*	Copper	1,500	*
Lead	300	47	Lead	300	42	Lead	300	*	Lead	300	*
Mercury	17	2.41	Mercury	17	2.37	Mercury	17	*	Mercury	17	*
Molybdenum	75	20	Molybdenum	75	12	Molybdenum	75	*	Molybdenum	75	*
Nickel	420	22	Nickel	420	22	Nickel	420	*	Nickel	420	*
Selenium	36	9.4	Selenium	36	7.65	Selenium	36	*	Selenium	36	*
Zinc	2,800	617	Zinc	2,800	580	Zinc	2,800	*	Zinc	2,800	*
NH ₃	NA	9500	NH ₃	NA	13900	NH ₃	NA	*	NH ₃	NA	*
NO ₂ /NO ₃	NA	ND	NO ₂ /NO ₃	NA	ND	NO ₂ /NO ₃	NA	*	NO ₂ /NO ₃	NA	*

ANALYSIS RESULTS BIOSOLIDS

<i>Jun-99</i>			<i>Jul-99</i>			<i>Aug-99</i>			<i>Sep-99</i>		
Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results	Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results	Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results	Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results
	mg/kg	mg/kg		mg/kg	mg/kg		mg/kg	mg/kg		mg/kg	mg/kg
Arsenic	41	*	Arsenic	41	2.02	Arsenic	41	2.82	Arsenic	41	3.47
Cadmium	39	*	Cadmium	39	3.9	Cadmium	39	2.8	Cadmium	39	5
Chromium	1,200	*	Chromium	1,200	39	Chromium	1,200	49	Chromium	1,200	66
Copper	1,500	*	Copper	1,500	619	Copper	1,500	680	Copper	1,500	834
Lead	300	*	Lead	300	50	Lead	300	69	Lead	300	62
Mercury	17	*	Mercury	17	1.78	Mercury	17	2.32	Mercury	17	2.68
Molybdenum	75	*	Molybdenum	75	24	Molybdenum	75	23	Molybdenum	75	14
Nickel	420	*	Nickel	420	29	Nickel	420	31	Nickel	420	43
Selenium	36	*	Selenium	36	8.83	Selenium	36	10.14	Selenium	36	6.44
Zinc	2,800	*	Zinc	2,800	757	Zinc	2,800	886	Zinc	2,800	900
NH ₃	NA	*	NH ₃	NA	11200	NH ₃	NA	12500	NH ₃	NA	13400
NO ₂ /NO ₃	NA	*	NO ₂ /NO ₃	NA	ND	NO ₂ /NO ₃	NA	ND	NO ₂ /NO ₃	NA	ND

Note: * Biosolids being composted during this period of time.

WESTERN RIVERSIDE COUNTY REGIONAL WASTEWATER TREATMENT PLANT
ANNUAL BIOSOLIDS REPORT 1999

ANALYSIS RESULTS BIOSOLIDS

Oct-99			Nov-99			Dec-99					
Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results	Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results	Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results	Constituent	Pollutant Concentration Limits for EQ and PC Biosolids	Results
	mg/kg	mg/kg		mg/kg	mg/kg		mg/kg	mg/kg		mg/kg	mg/kg
Arsenic	41	4.84	Arsenic	41	3.75	Arsenic	41	3.16	Arsenic	41	
Cadmium	39	3.6	Cadmium	39	2.8	Cadmium	39	3.4	Cadmium	39	
Chromium	1,200	47	Chromium	1,200	51	Chromium	1,200	44	Chromium	1,200	
Copper	1,500	708	Copper	1,500	564	Copper	1,500	600	Copper	1,500	
Lead	300	75	Lead	300	53	Lead	300	61	Lead	300	
Mercury	17	2.17	Mercury	17	2.09	Mercury	17	1.99	Mercury	17	
Molybdenum	75	14	Molybdenum	75	10	Molybdenum	75	13	Molybdenum	75	
Nickel	420	41	Nickel	420	32	Nickel	420	32	Nickel	420	
Selenium	36	6.13	Selenium	36	9.45	Selenium	36	6.24	Selenium	36	
Zinc	2,800	787	Zinc	2,800	684	Zinc	2,800	748	Zinc	2,800	
NH ₃	NA	13000	NH ₃	NA	14600	NH ₃	NA	9100	NH ₃	NA	
NO ₂ /NO ₃	NA	ND	NO ₂ /NO ₃	NA	ND	NO ₂ /NO ₃	NA	13	NO ₂ /NO ₃	NA	

WESTERN RIVERSIDE COUNTY REGIONAL WASTEWATER TREATMENT PLANT

BIOSOLIDS PRODUCED

MONTH	DRY TONS	WET TONS
JANUARY	106.14	566.65

MONTH	DRY TONS	WET TONS
FEBRUARY	98.59	526.4

MONTH	DRY TONS	WET TONS
MARCH	122.34	653.18

MONTH	DRY TONS	WET TONS
APRIL	0	0

COMPOSTED MARCH 51.43 DRY TONS

COMPOSTED APRIL 106.69 DRY TONS

MONTH	DRY TONS	WET TONS
MAY	0	0

MONTH	DRY TONS	WET TONS
JUNE	16.67	88.98

COMPOSTED MAY 97.71 DRY TONS

COMPOSTED JUNE 100.58 DRY TONS

MONTH	DRY TONS	WET TONS
JULY	102.31	492.46

MONTH	DRY TONS	WET TONS
AUGUST	77.28	385.2

MONTH	DRY TONS	WET TONS
SEPTEMBER	51.67	350.44

MONTH	DRY TONS	WET TONS
OCTOBER	76.57	407.41

MONTH	DRY TONS	WET TONS
NOVEMBER	47.15	304.19

MONTH	DRY TONS	WET TONS
DECEMBER	31.02	196.74

TOTAL DRY TONS LAND APPLIED FOR 1999 729.74

TOTAL DRY TONS COMPOSTED FOR 1999 408.83

TOTAL BIOSOLIDS PRODUCED DRY TONS FOR 1999 1138.57

TOTAL BIOSOLIDS PRODUCED DRY METRIC TONS FOR 1999 1033.9

TOTAL BIOSOLIDS PRODUCED DRY METRIC TONS FOR 1998 115.2

WESTERN RIVERSIDE COUNTY REGIONAL WWTP

SLUDGE FECAL COLIFORM FOR CLASS B SLUDGE

Geometric Mean Work Sheet

Class B sludge alternative 1

To demonstrate that a given domestic sewage sludge sample meets Class B pathogen requirements under alternative 1, the density of fecal coliform from seven samples of treated sewage sludge must be determined and the geometric mean of the fecal coliform density must not exceed 2 million Most Probable Number (MPN) per gram of sewage sludge solids on a dry weight basis.

Calculation

$$\text{MPN fecal coliform/g} = \frac{10 \times \text{MPN index/100 mL}^*}{\text{largest volume} \times \% \text{ dry solids tested}}$$

Note: * Refer to table 9221.IV in Standard Methods

Sample 1	Sample Location	<u>DIGESTER 2</u>	Date	<u>12/22/1998</u>
MPN index			MPN/g	<u>167,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				
Sample 2	Sample Location	<u>DIGESTER 2</u>	Date	<u>12/30/1998</u>
MPN index			MPN/g	<u>30,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				
Sample 3	Sample Location	<u>DIGESTER 2</u>	Date	<u>12/30/1998</u>
MPN index			MPN/g	<u>267,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				
Sample 4	Sample Location	<u>DIGESTER 2</u>	Date	<u>01/04/1999</u>
MPN index			MPN/g	<u>467,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				
Sample 5	Sample Location	<u>DIGESTER 2</u>	Date	<u>01/04/1999</u>
MPN index			MPN/g	<u>433,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				
Sample 6	Sample Location	<u>DIGESTER 2</u>	Date	<u>01/07/1999</u>
MPN index			MPN/g	<u>100,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				
Sample 7	Sample Location	<u>DIGESTER 2</u>	Date	<u>01/07/1999</u>
MPN index			MPN/g	<u>167,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				

Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7
167000	30000	267000	467000	433000	100000	167000

GEOMETRIC MEAN FECAL COLIFORM DENSITY FROM ABOVE SAMPLES: 172,350

WESTERN RIVERSIDE COUNTY REGIONAL WWTP

SLUDGE FECAL COLIFORM FOR CLASS B SLUDGE

Geometric Mean Work Sheet

Class B sludge alternative 1

To demonstrate that a given domestic sewage sludge sample meets Class B pathogen requirements under alternative 1, the density of fecal coliform from seven samples of treated sewage sludge must be determined and the geometric mean of the fecal coliform density must not exceed 2 million Most Probable Number (MPN) per gram of sewage sludge solids on a dry weight basis.

Calculation

$$\text{MPN fecal coliform/g} = \frac{10 \times \text{MPN index/100 mL}^*}{\text{largest volume} \times \% \text{ dry solids tested}}$$

Note: * Refer to table 9221.IV in Standard Methods

Sample 1	Sample Location	<u>DIGESTER 2</u>	Date	<u>11/30/1998</u>
MPN index			MPN/g	<u>387,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				
Sample 2	Sample Location	<u>DIGESTER 2</u>	Date	<u>12/01/1998</u>
MPN index			MPN/g	<u>90,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				
Sample 3	Sample Location	<u>DIGESTER 2</u>	Date	<u>12/03/1998</u>
MPN index			MPN/g	<u>403,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				
Sample 4	Sample Location	<u>DIGESTER 2</u>	Date	<u>12/04/1998</u>
MPN index			MPN/g	<u>398,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				
Sample 5	Sample Location	<u>DIGESTER 2</u>	Date	<u>12/07/1998</u>
MPN index			MPN/g	<u>233,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				
Sample 6	Sample Location	<u>DIGESTER 2</u>	Date	<u>12/07/1998</u>
MPN index			MPN/g	<u>433,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				
Sample 7	Sample Location	<u>DIGESTER 2</u>	Date	<u>12/22/1998</u>
MPN index			MPN/g	<u>167,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				

Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7
387000	90000	403000	398000	233000	433000	167000

GEOMETRIC MEAN FECAL COLIFORM DENSITY FROM ABOVE SAMPLES: 265,959

WESTERN RIVERSIDE COUNTY REGIONAL WWTP

SLUDGE FECAL COLIFORM FOR CLASS B SLUDGE

Geometric Mean Work Sheet

Class B sludge alternative 1

To demonstrate that a given domestic sewage sludge sample meets Class B pathogen requirements under alternative 1, the density of fecal coliform from seven samples of treated sewage sludge must be determined and the geometric mean of the fecal coliform density must not exceed 2 million Most Probable Number (MPN) per gram of sewage sludge solids on a dry weight basis.

Calculation

$$\text{MPN fecal coliform/g} = \frac{10 \times \text{MPN index/100 mL}^*}{\text{largest volume} \times \% \text{ dry solids tested}}$$

Note: * Refer to table 9221.IV in Standard Methods

Sample 1	Sample Location	<u>DIGESTER 2</u>	Date	<u>11/04/1998</u>
MPN index			MPN/g	<u>10,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				
Sample 2	Sample Location	<u>DIGESTER 2</u>	Date	<u>11/04/1998</u>
MPN index			MPN/g	<u>64,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				
Sample 3	Sample Location	<u>DIGESTER 2</u>	Date	<u>11/12/1998</u>
MPN index			MPN/g	<u>4,330</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				
Sample 4	Sample Location	<u>DIGESTER 2</u>	Date	<u>11/12/1998</u>
MPN index			MPN/g	<u>7,670</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				
Sample 5	Sample Location	<u>DIGESTER 2</u>	Date	<u>11/16/1998</u>
MPN index			MPN/g	<u>3,670</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				
Sample 6	Sample Location	<u>DIGESTER 2</u>	Date	<u>11/16/1998</u>
MPN index			MPN/g	<u>80,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				
Sample 7	Sample Location	<u>DIGESTER 2</u>	Date	<u>11/19/1998</u>
MPN index			MPN/g	<u>1,000,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)				

Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7
10000	64000	4330	7670	3670	80000	1000000

GEOMETRIC MEAN FECAL COLIFORM DENSITY FROM ABOVE SAMPLES: 25,079

WESTERN RIVERSIDE COUNTY REGIONAL WWTP

SLUDGE FECAL COLIFORM FOR CLASS B SLUDGE

Geometric Mean Work Sheet

Class B sludge alternative 1

To demonstrate that a given domestic sewage sludge sample meets Class B pathogen requirements under alternative 1, the density of fecal coliform from seven samples of treated sewage sludge must be determined and the geometric mean of the fecal coliform density must not exceed 2 million Most Probable Number (MPN) per gram of sewage sludge solids on a dry weight basis.

Calculation

$$\text{MPN fecal coliform/g} = \frac{10 \times \text{MPN index/100 mL}^*}{\text{largest volume} \times \% \text{ dry solids tested}}$$

Note: * Refer to table 9221.IV in Standard Methods

Sample 1	Sample Location	<u>DIGESTER 2</u>	Date	<u>12/20/1999</u>
MPN index	<u>4</u>		MPN/g	<u>16,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)	<u>2.5</u>			

Sample 2	Sample Location	<u>DIGESTER 2</u>	Date	<u>12/22/1999</u>
MPN index	<u>2</u>		MPN/g	<u>7,692</u>
largest volume	<u>0.001</u>			
Sample % solids (total)	<u>2.6</u>			

Sample 3	Sample Location	<u>DIGESTER 2</u>	Date	<u>12/27/1999</u>
MPN index	<u>2</u>		MPN/g	<u>7,143</u>
largest volume	<u>0.001</u>			
Sample % solids (total)	<u>2.8</u>			

Sample 4	Sample Location	<u>DIGESTER 2</u>	Date	<u>12/29/1999</u>
MPN index	<u>2</u>		MPN/g	<u>7,692</u>
largest volume	<u>0.001</u>			
Sample % solids (total)	<u>2.6</u>			

Sample 5	Sample Location	<u>DIGESTER 2</u>	Date	<u>12/31/1999</u>
MPN index	<u>2</u>		MPN/g	<u>7,692</u>
largest volume	<u>0.001</u>			
Sample % solids (total)	<u>2.6</u>			

Sample 6	Sample Location	<u>DIGESTER 2</u>	Date	<u>01/05/2000</u>
MPN index	<u>2</u>		MPN/g	<u>8,000</u>
largest volume	<u>0.001</u>			
Sample % solids (total)	<u>2.5</u>			

Sample 7	Sample Location	<u>DIGESTER 2</u>	Date	<u>01/06/2000</u>
MPN index	<u>2</u>		MPN/g	<u>6,667</u>
largest volume	<u>0.001</u>			
Sample % solids (total)	<u>3</u>			

Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6	Sample 7
16000	7692	7143	7692	7692	8000	6667

GEOMETRIC MEAN FECAL COLIFORM DENSITY FROM ABOVE SAMPLES: 8,698

Synagro/Pima Gro Systems, Inc.
Biosolids Land Application Site Summary
January - December 1999

Start Date	End Date	Site	Source	Total Wet Tons	% Solids	Total Dry Tons	# of Loads
2-Jan-99	2-Jan-99	WRIV	RDB-4	39.12	18.73%	7.33	2
4-Jan-99	15-Jan-99	WRIV	RDB-3	166.16	18.73%	31.12	8
5-Jan-99	9-Jan-99	WRIV	RDB-1	175.99	18.73%	32.96	8
18-Jan-99	26-Jan-99	WRIV	RGF-1	124.96	18.73%	23.41	8
27-Jan-99	30-Jan-99	WRIV	RDB-5	60.42	18.73%	11.32	4
1-Feb-99	20-Feb-99	WRIV	RDF-7	143.59	18.73%	26.89	7
8-Feb-99	17-Feb-99	WRIV	RDF-8	238.12	18.73%	44.60	11
22-Feb-99	23-Feb-99	WRIV	RDF-3	56.67	18.73%	10.61	2
26-Feb-99	23-Feb-99	WRIV	RCM-1	88.02	18.73%	16.49	3
15-Mar-99	3-Mar-99	WRIV	RCM-1	630.70	18.73%	118.13	27
19-Mar-99	19-Mar-99	WRIV	RDB-6	22.48	18.73%	4.21	1
29-Mar-99	31-Mar-99	WRIV	Recyc	77.29	18.73%	14.48	4
28-Jun-99	30-Jun-99	WRIV	RDF-9	88.98	18.73%	16.67	4
1-Jul-99	1-Jul-99	WRIV	RDF-9	24.73	20.78%	5.14	1
2-Jul-99	2-Jul-99	WRIV	RDF-10	38.61	20.78%	8.02	2
6-Jul-99	12-Jul-99	WRIV	RRM 1-4	96.41	20.78%	20.03	5
13-Jul-99	15-Jul-99	WRIV	RDB-16B	63.45	20.78%	13.18	3
16-Jul-99	16-Jul-99	WRIV	RDB-16C	32.40	20.78%	6.73	2
19-Jul-99	23-Jul-99	WRIV	RDB-13	120.76	20.78%	25.09	6
24-Jul-99	25-Jul-99	WRIV	RDF-5	43.22	20.78%	8.98	2
26-Jul-99	26-Jul-99	WRIV	RDF-6	72.88	20.78%	15.14	3
2-Aug-99	4-Aug-99	WRIV	RDB-5	77.20	20.06%	15.49	4
5-Aug-99	7-Aug-99	WRIV	RDB-22	53.09	20.06%	10.65	3
10-Aug-99	10-Aug-99	WRIV	RDB-10	16.81	20.06%	3.37	1
12-Aug-99	12-Aug-99	WRIV	RJW-1	39.41	20.06%	7.91	2
13-Aug-99	13-Aug-99	WRIV	RJW-3	19.99	20.06%	4.01	1
16-Aug-99	19-Aug-99	WRIV	HURD-1	86.05	20.06%	17.26	5
23-Aug-99	23-Aug-99	WRIV	RDF-8NE	15.70	20.06%	3.15	1
24-Aug-99	30-Aug-99	WRIV	RDF-4	76.95	20.06%	15.44	5
1-Sep-99	3-Sep-99	WRIV	RDF-4	43.39	14.75%	6.40	3
2-Sep-99	2-Sep-99	WRIV	RDF-3N	15.01	14.75%	2.21	1
4-Sep-99	4-Sep-99	WRIV	RDF-7NE	29.86	14.75%	4.40	2
7-Sep-99	10-Sep-99	WRIV	RDB-24	49.72	14.75%	7.33	3
13-Sep-99	15-Sep-99	WRIV	RDB-25	40.37	14.75%	5.95	3
16-Sep-99	16-Sep-99	WRIV	RDB-23	9.85	14.75%	1.45	1
17-Sep-99	28-Sep-99	WRIV	RDB-26	121.54	14.75%	17.93	6
29-Sep-99	30-Sep-99	WRIV	RGF	40.70	14.75%	6.00	2
1-Oct-99	1-Oct-99	WRIV	RGF	41.44	18.79%	7.79	2
5-Oct-99	7-Oct-99	WRIV	RDB-27	53.26	18.79%	10.01	3
8-Oct-99	11-Oct-99	WRIV	RCH-1	46.76	18.79%	8.79	3
12-Oct-99	13-Oct-99	WRIV	RFL-1	31.94	18.79%	6.00	2
14-Oct-99	19-Oct-99	WRIV	RCM-1	57.36	18.79%	10.78	3
20-Oct-99	28-Oct-99	WRIV	RDB-23	159.06	18.79%	29.89	8
29-Oct-99	29-Oct-99	WRIV	RDB-16	17.59	18.79%	3.31	1

WRIV in field plan

Not in site plan

Start Date	End Date	Site	Source	Total Wet Tons	% Solids	Total Dry Tons	# of Loads
1-Nov-99	2-Nov-99	WRIV	RDB-15	42.13	15.50%	6.53	2
3-Nov-99	3-Nov-99	WRIV	RDB-2	18.60	15.50%	2.88	1
4-Nov-99	6-Nov-99	WRIV	RDF-7SE	60.73	15.50%	9.41	3
9-Nov-99	11-Nov-99	WRIV	RDF-8NW	52.01	15.50%	8.06	3
16-Nov-99	19-Nov-99	WRIV	RRS-1	32.90	15.50%	5.10	2
17-Nov-99	17-Nov-99	WRIV	RRS-3	12.84	15.50%	1.99	1
18-Nov-99	18-Nov-99	WRIV	RRS-2	15.97	15.50%	2.48	1
20-Nov-99	24-Nov-99	WRIV	RDB-21	48.59	15.50%	7.53	3
27-Nov-99	27-Nov-99	WRIV	RDB-1	20.42	15.50%	3.17	1
1-Dec-99	2-Dec-99	WRIV	RDB-1	32.80	15.77%	5.17	2
3-Dec-99	7-Dec-99	WRIV	RDB-14	37.86	15.77%	5.97	2
11-Dec-99	11-Dec-99	WRIV	RDB-18	19.55	15.77%	3.08	1
16-Dec-99	18-Dec-99	WRIV	RJR-1	36.27	15.77%	5.72	2
24-Dec-99	24-Dec-99	WRIV	RRB-1	26.86	15.77%	4.24	1
29-Dec-99	31-Dec-99	WRIV	RDB-29	43.40	15.77%	6.84	2

TOTAL

4,049

744

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